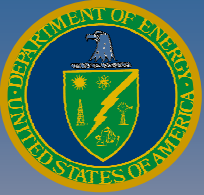


Space Utilization and the Next Generation of Space Management

Using Space Planning and Workplace Design to Improve Corporate Performance

Cindy Hunt, PE, LEED AP
Facilities Engineer
Office of Engineering and Construction Management



21st Century Challenges



**Change is Inevitable;
Growth is Optional**



Change Drivers to Traditional Space Allocation

Cost of Operating Facilities

Existing EO's on Energy and Greening

Carbon Revolution

Responsiveness to Corporate Demands

Understanding Who We Are

Broadening Workplace Diversity

Aging Buildings





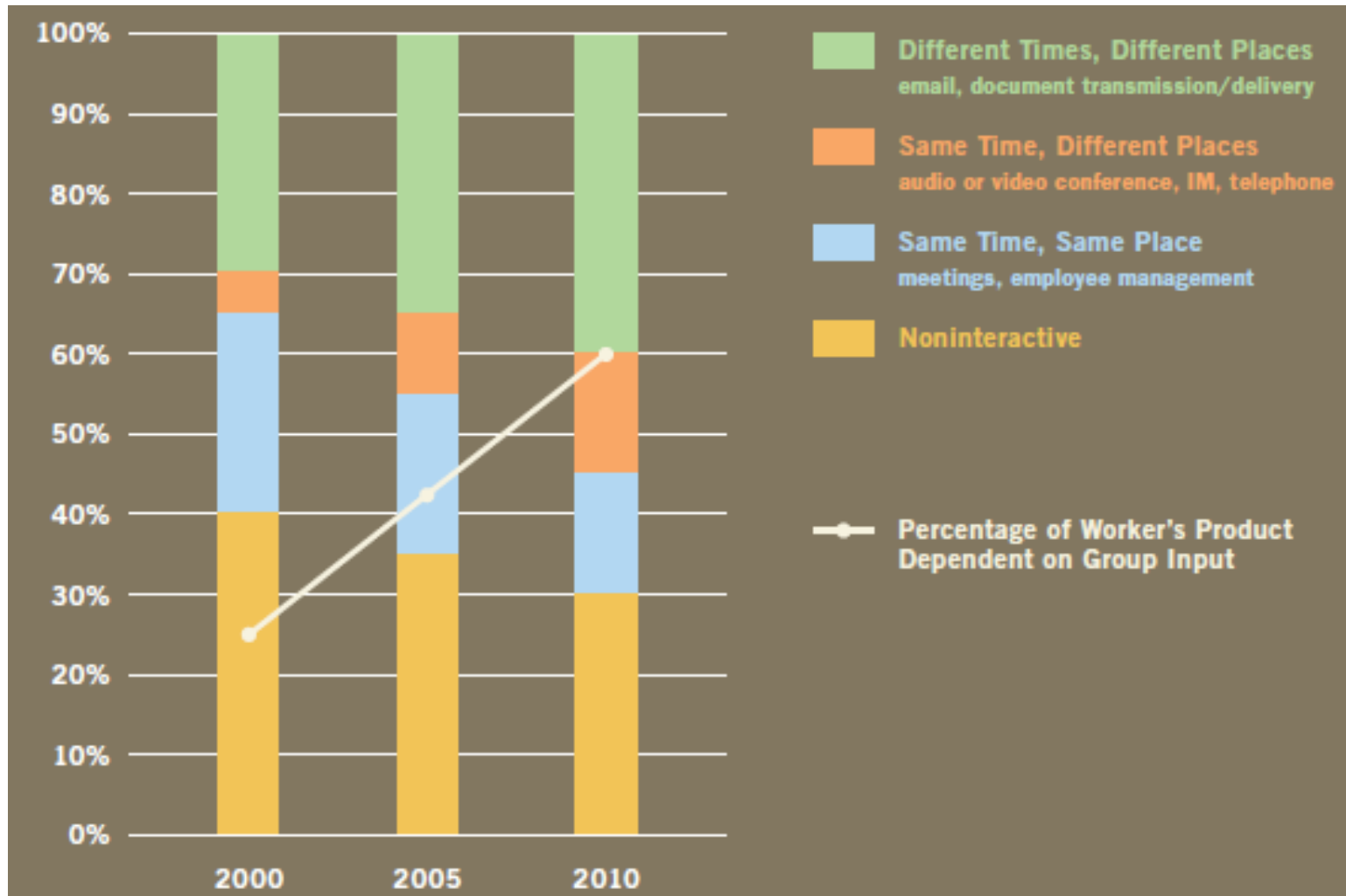
Understanding Who We Are

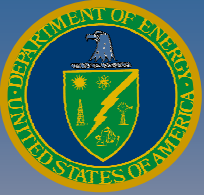
- **Knowledge Workers**
- **High Retention Rates**
- **Longevity at DOE**





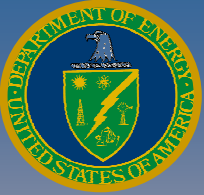
Changing Ways of Working





Changing Assumptions Concerning the Workplace

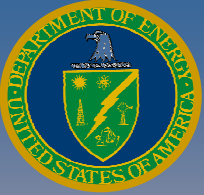
Yesterday	Today
Serve regional customers	Markets are global
Hire local workers	Hire the best talent
Expect employees to be “here”	Workforce is anywhere
Manage by walking around	Manage through leadership
Work in a single space	Work locations are multiple
Work mostly is individual	Work activity is more team-dependent
Major work constraint-rules	Major work constraint-time



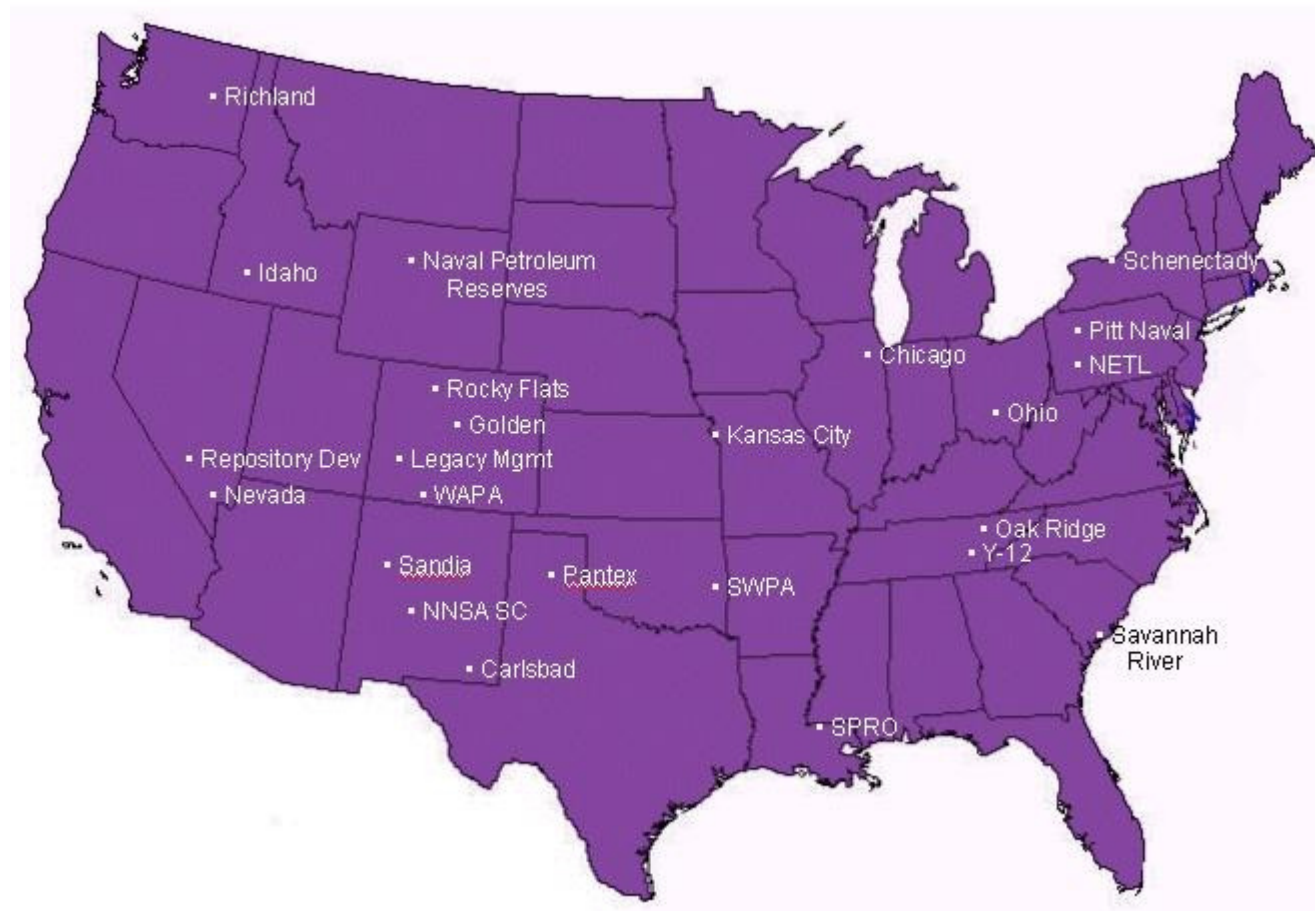
Aging Buildings

As facilities and infrastructure approach the end of their planned working life, decisions of repair, reuse or replace will be increasingly faced by facility management professionals.



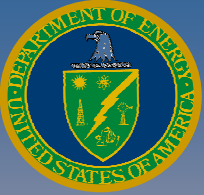


DOE Facility Location

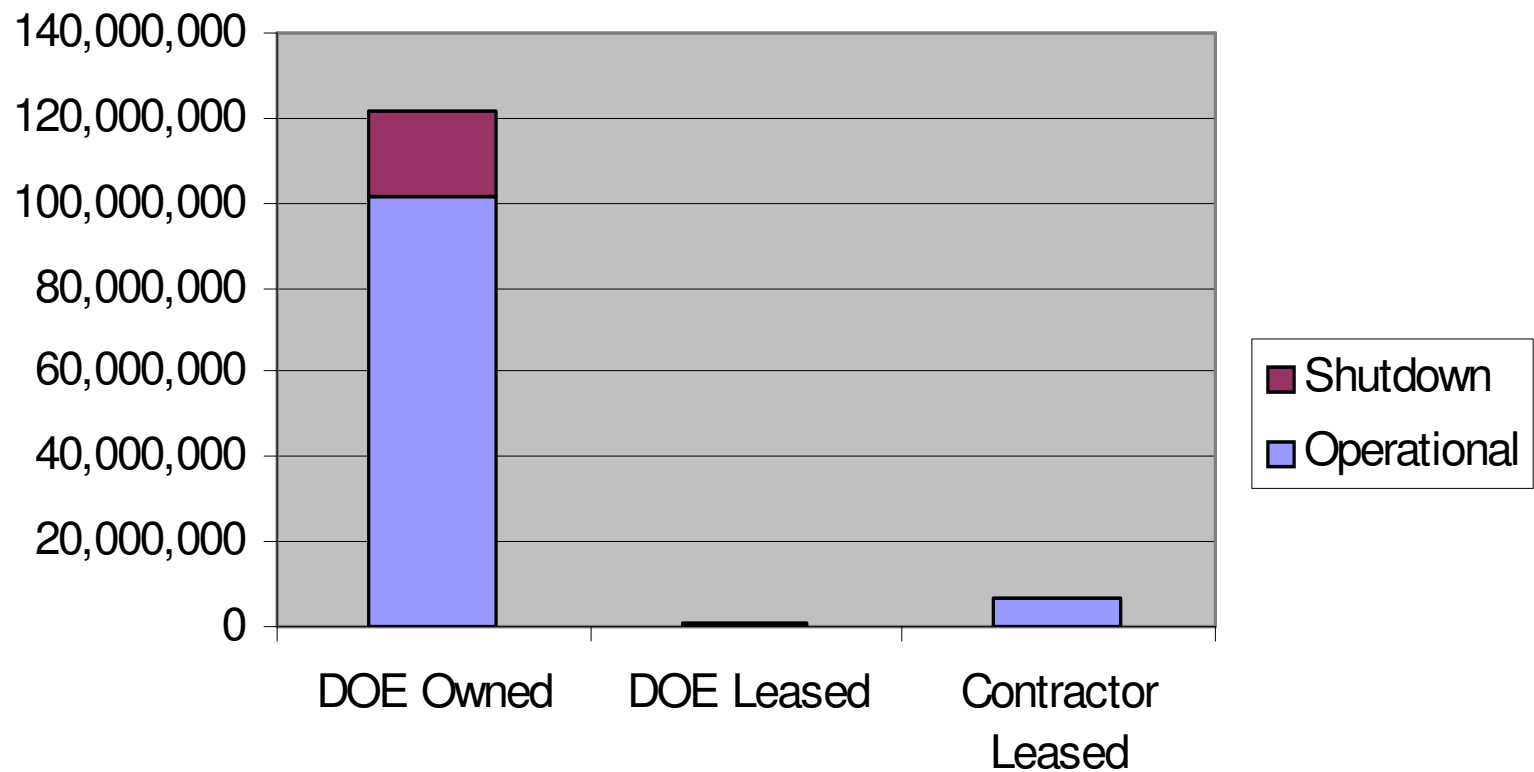


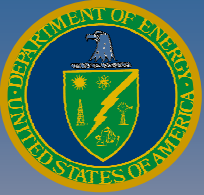
2009
FIMS/RE
Workshop

9,872 Owned Buildings

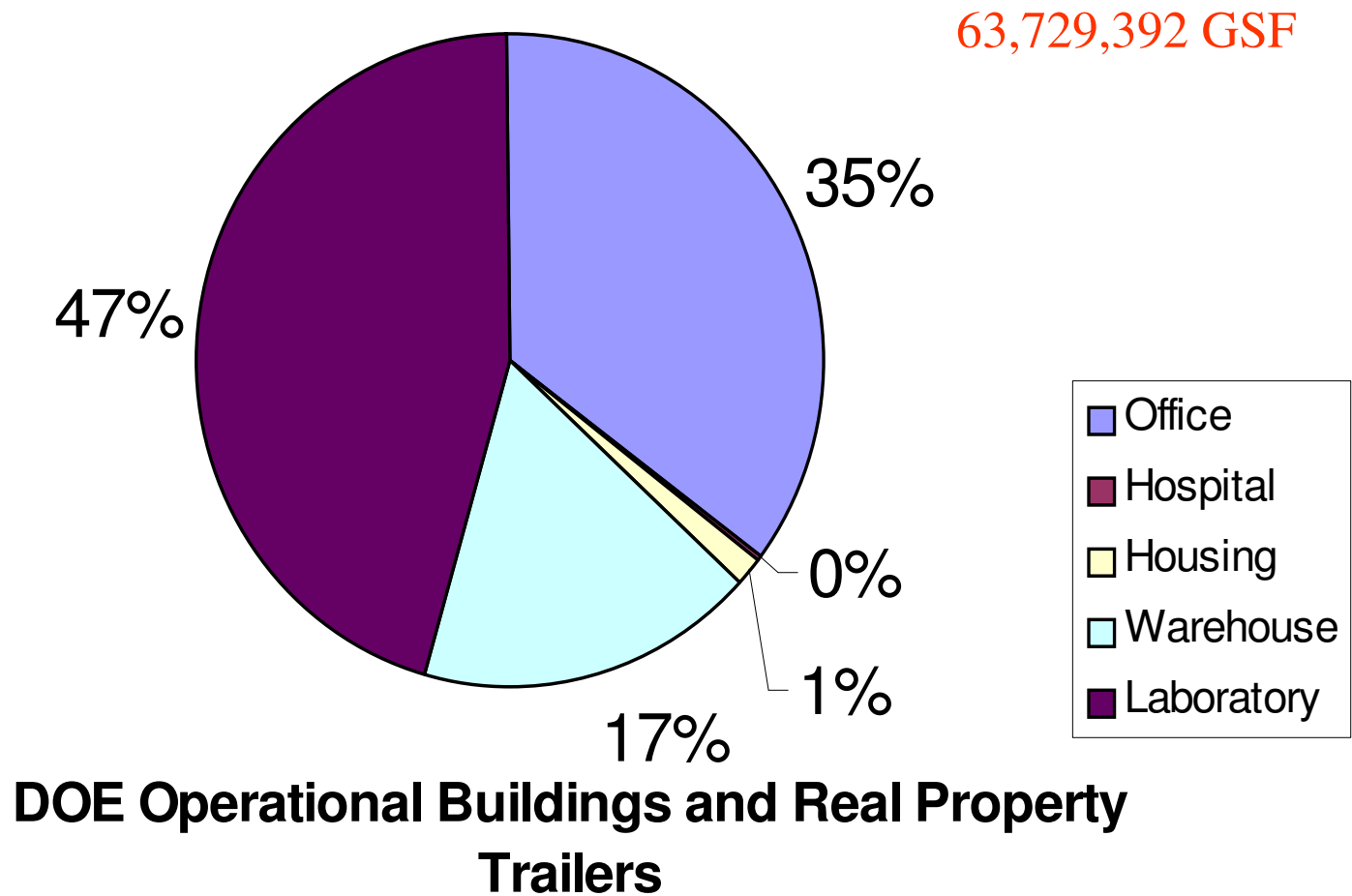


DOE Space Ownership



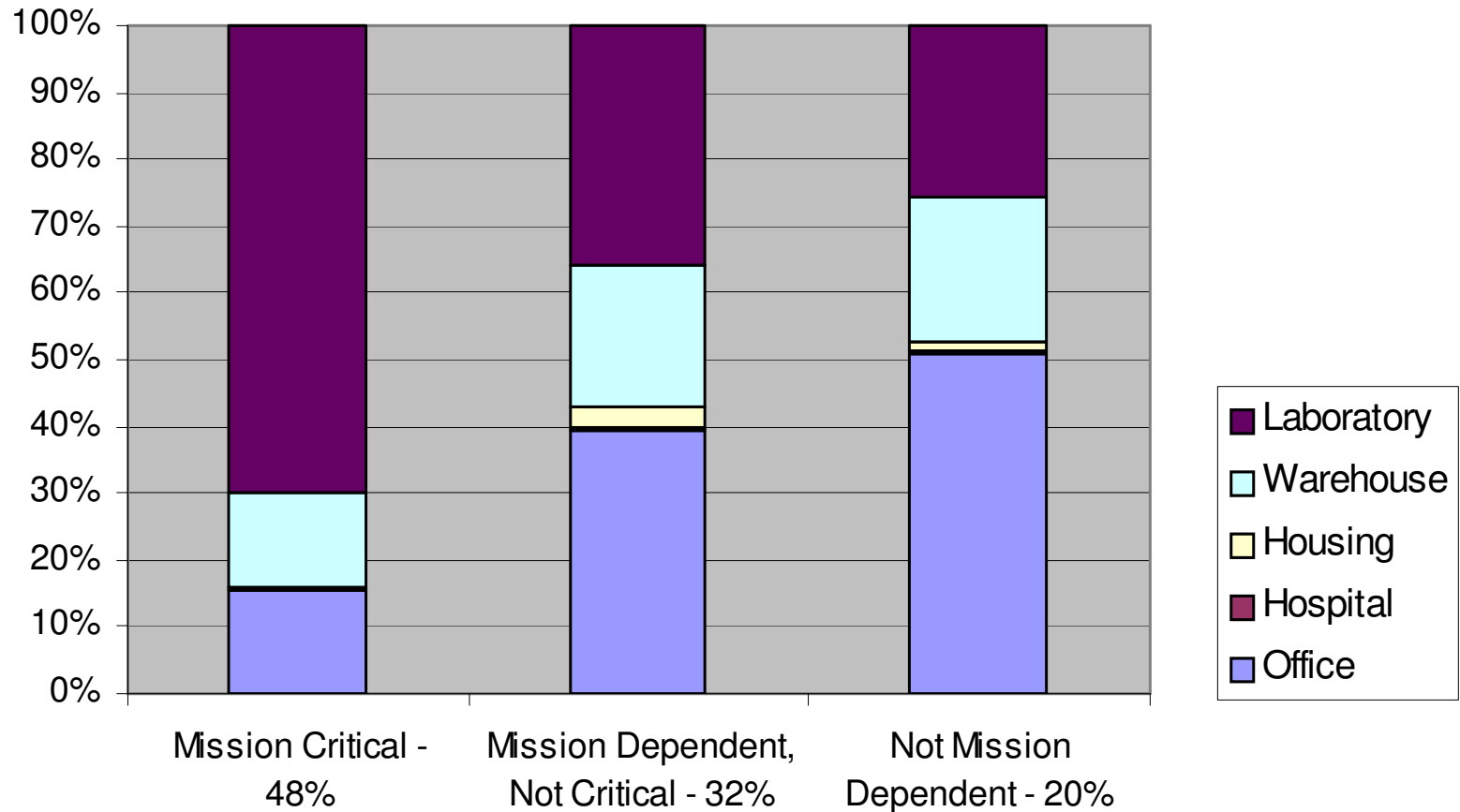


DOE Current Space Usage





Facilities Supporting DOE Missions



DOE Mission-Related Buildings and Real Property Trailers



Space Management -

A Balancing Act

- **Space availability**
- **Corporate culture**
- **Mission**
- **Job requirements**
- **Cost**
- **Efficiency**
- **Space per person**





Life Cycle Costs of Buildings



Annual Operating Costs

- Rent
\$ 3.4 K or 6%
- O&M
\$ 0.6-1.5 K or 2%
- Churn
\$ 0.75 K or 1%
- Technology
\$ 8 K or 13%
- Salary
\$ 35 K or 54%
- Benefits
\$ 15 K or 24%
per employee

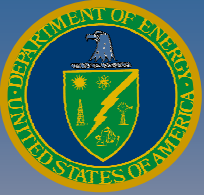
Source: Center for Building Performance and Diagnostics, Carnegie Mellon University



Life-Cycle Operating Costs

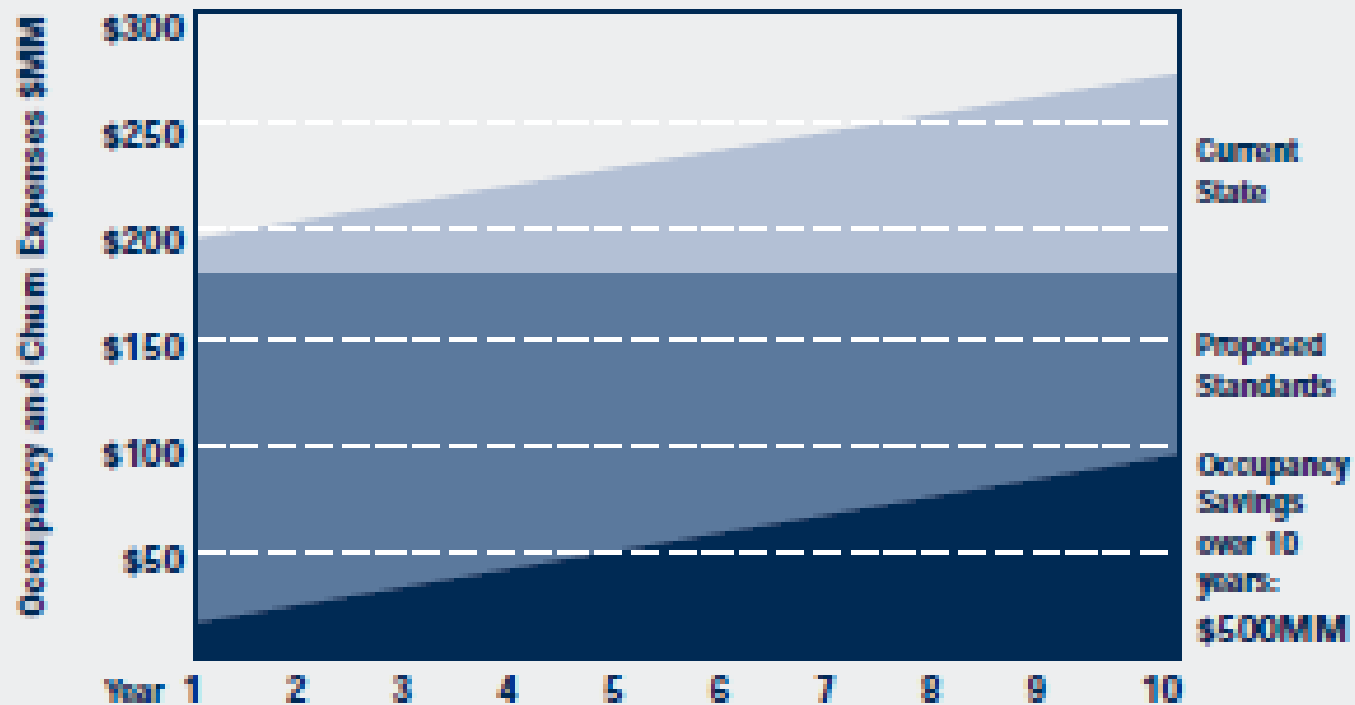
- Employee Salary and Benefits Costs
90%
- Design and Construction Costs
5%
- Operating and Maintenance Costs
5%

Source: GSA Public Buildings Service

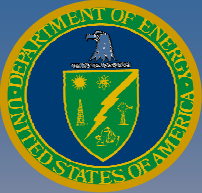


Space Management Support Corporate Performance

CITIBANK GLOBAL EXPENSE "SAVINGS" ESTIMATE



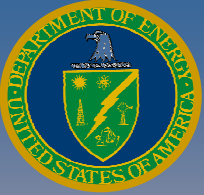
**From a study of strategic office sites in the U.S. with churn assumptions for international locations*



Impacts of the Workplace

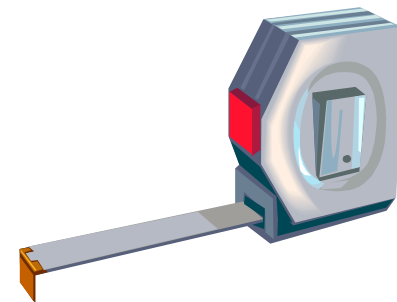
	Computer Programmers	
	Best Performers	Worst Performers
	<i>Top Quarter</i>	<i>Bottom Quarter</i>
Workstation size	<i>78 square feet</i>	<i>46 square feet</i>
Noise level acceptable	<i>57%</i>	<i>29%</i>
Privacy level acceptable	<i>62%</i>	<i>19%</i>
Phone can be silenced	<i>52%</i>	<i>10%</i>
Phone calls can be diverted	<i>76%</i>	<i>19%</i>
Frequent needless interruptions	<i>38%</i>	<i>76%</i>

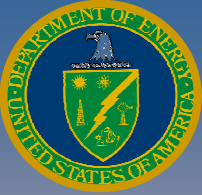




Benchmarking Outcomes

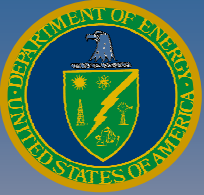
- **SF/person – Federal workplace and industry averages**
- **Cost/person/year – GSA Model; Johnson Control U.S. Facility Cost Index**
- **"Up Time" - % of time available to do mission**
- **Utilization Rate**





Occupying or Utilizing?

**How much space we are taking up
(occupying) compared to how well we use
what we have (utilization)**



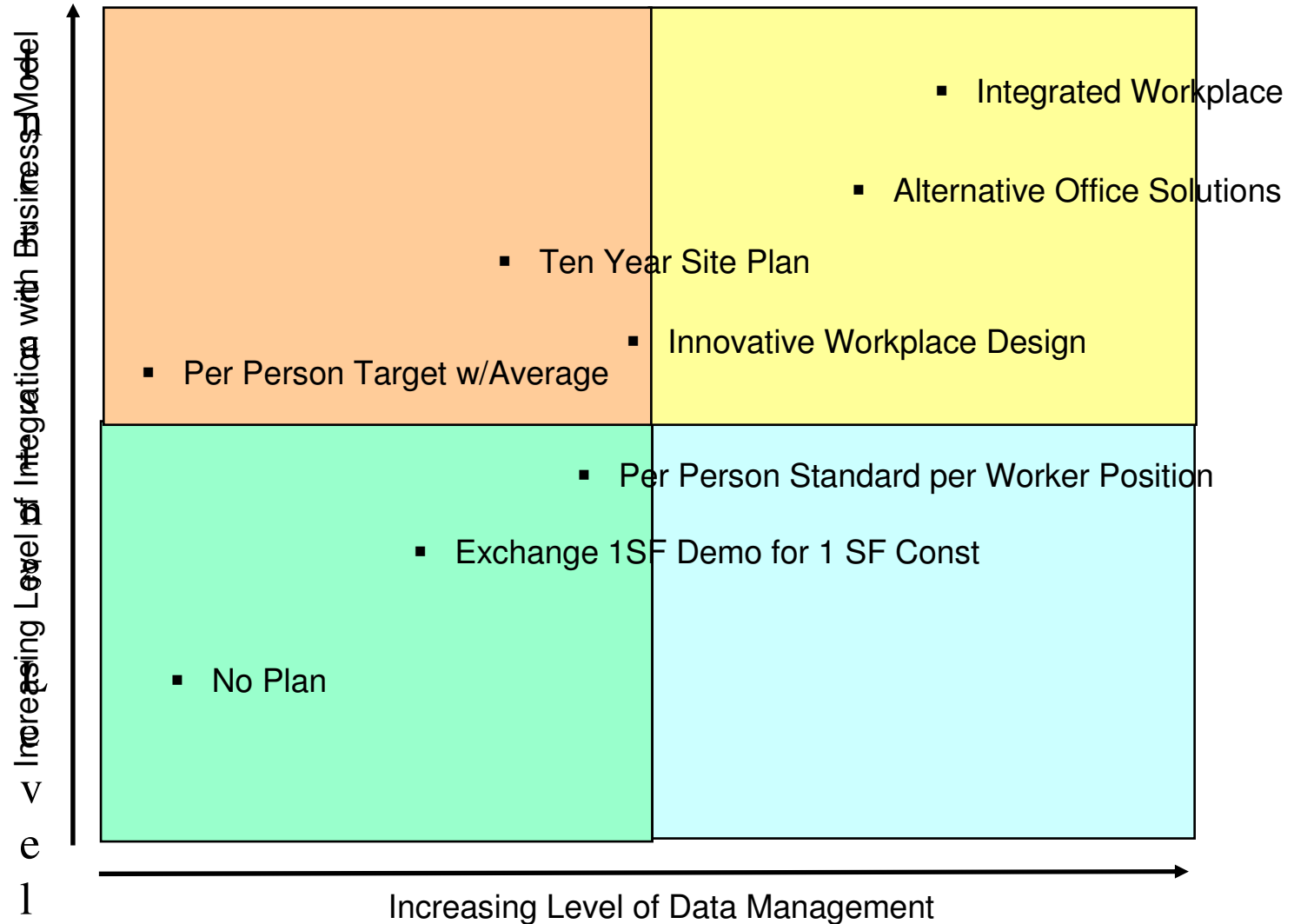
Facility Utilization Standards: An Example

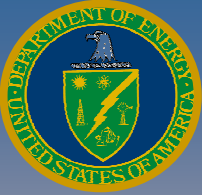
Minimum Utilization Standards – Yardsticks to measure efficiency of classroom and teaching laboratory use

- Help manage campus buildings
- Provide the Legislature with important information regarding funding decisions
- Reduces the need to construct new buildings thus conserving scarce state resources



The Next Step





Integrated Workplace

- **Spatial Equity**
- **Healthfulness**
- **Flexibility**
- **Comfort**
- **Technological**
- **Connectivity**
- **Reliability**
- **Sense of Place**



Alternative Office Solutions

Alternative Officing Solutions and Flexible Space

On-Premises:

Hoteling

Moteling

Shared Space – "Hot Desking"

Caves and Commons/Privacy Space

Free Address

Home Base

Relief Space

Team or Group Address /Co-location

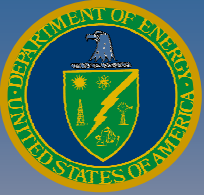
Conference /Multi-media Spaces

Off-Premises:

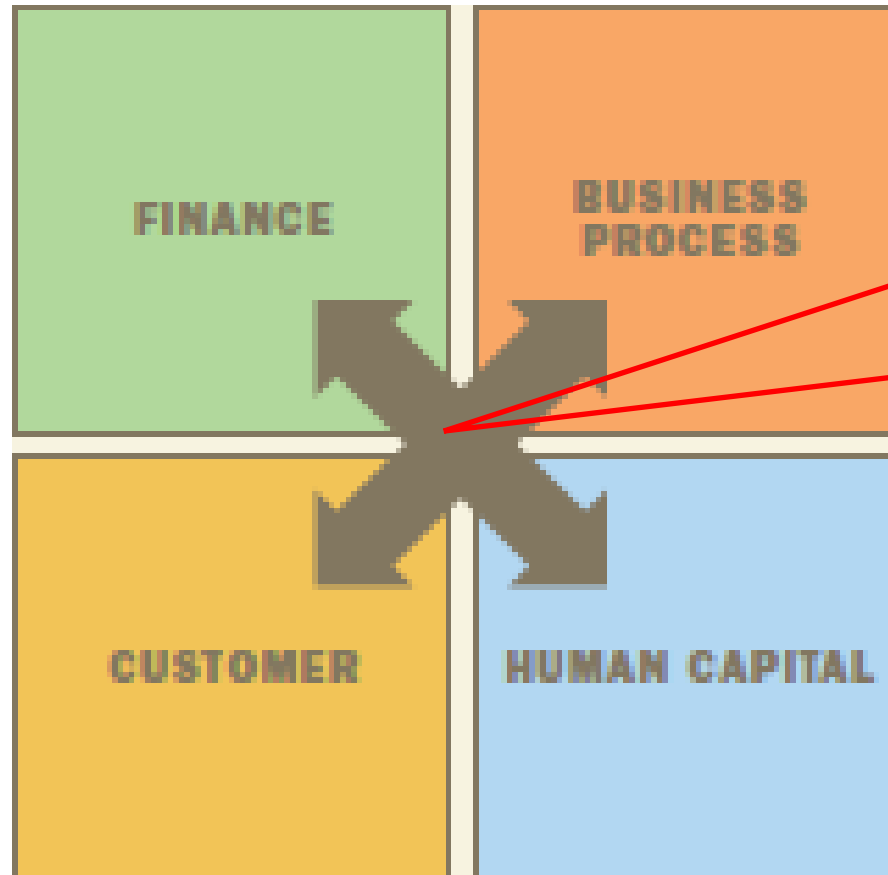
Teleworking/Telecommuting

Satellite Offices and Telecenters

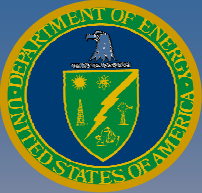
"Virtual Office"



Workplace as a Tool

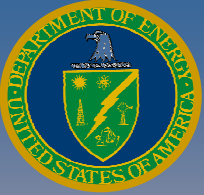


**You
Are
Here**



"You've Got the Rock"

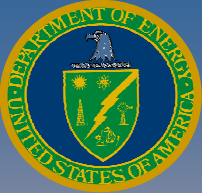
- Understand the impact of the build space on the "people costs"
- Re-think the definition of utilization
- Use space standards to "gut check" our needs analysis...a starting point
- Use collected FIMS data to evaluate space planning performance and facility management effectiveness (facility adequacy, condition and quality) as well as cost
- Be champions for better workspace
- Encourage and support Budget and procurement decisions by demonstrating the benefits of solutions based on a life-cycle model rather than a first-cost model
- Use TYSP and PPBES as vehicles to institutionalize strategic facilities planning
- Use Integrated Workplace practices in developing workspace



Questions??

Cynthia Hunt, PE, LEED AP
Facilities Engineer
Office of Engineering and Construction Management
Department of Energy
1000 Independence Ave, SW
Washington DC
202-586-4539

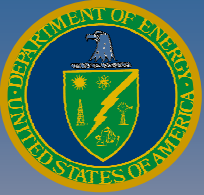
Cynthia.Hunt@hq.doe.gov



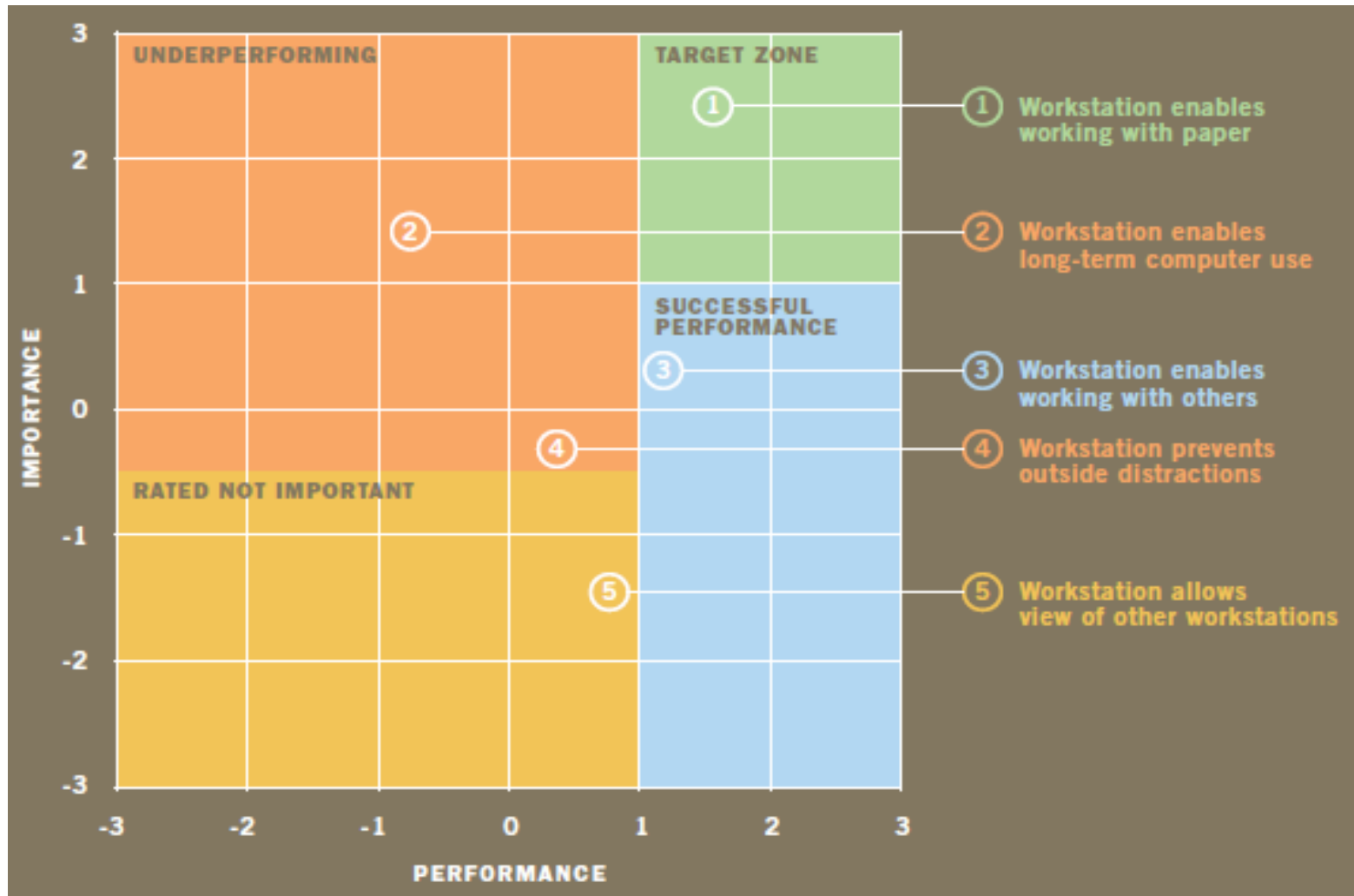
Ten Year Site Plan Working Group

Purpose: To establish a collaborative environment within which Programs and OECCM can:

- **create shared expectations of the Ten Year Site Planning (TYSP) process and products**
- **share internal practices and lessons learned as well as best practices**
- **explore the tradeoffs between process/product flexibility and standardization**



Workplace Performance

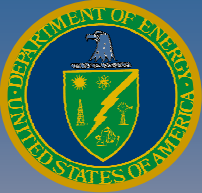




RPAM Asset Utilization Index

Asset Utilization Index (AUI) is the Department's corporate measure for assessing facilities and land holdings against requirements. The index reflects the outcome of real property acquisition and disposal policy, planning and resource decisions.

$$\text{AUI} = \frac{\text{Sum of Utilized GSF for the asset group}}{\text{Total GSF of Asset Group}} \times 100$$



FRPC Utilization

Utilization – the state of having been made use of

- Office & Hospitals: ratio of occupancy to current design capacity
- Warehouse: ration of gross SF occupied to current design capacity
- Laboratory: ratio of active units to current design capacity
- Housing: percent of individual units that are occupied



FRPC Utilization

Building Use Categories/Codes

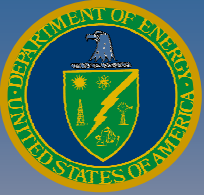
Utilization Categories and Codes for Reporting	Office (10)	Hospital (21)	Warehouse (41)	Laboratory (74)	Housing (30, 31)
Over-utilized (1)	>95%	>95%	>85%	>85%	NA
Utilized (2)	75-95 %	70-95 %	50-85 %	60-85 %	85-100 %
Under-utilized (3)	<75%	25-70 %	10-50 %	30-60 %	<85%
Not utilized (4)	NA	<25%	<10 %	<30%	NA

Example: An owned office building is 25,000 GSF (design capacity) but only 15,000 square feet are occupied (occupancy).

The formula is as follows: $60\% = (15,000\text{sf} / 25,000\text{sf}) \times 100$.

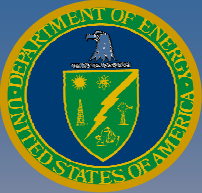
For this utilization rate of 60% for the Office category, the *Utilization* value of 3 (for under-utilized) would be reported.

Note: In this example, office utilization is based on square feet; however, it is up to each agency to determine the most appropriate unit of measure for occupancy and design capacity.



Sustainable Workplace

- **Facility**
- **Landscape**
- **Maintenance**
- **Transportation**



Alternative Officing Strategies

On-Premises:

- **HOTELING** – Employees call to reserve workspace in the main office, where there are fewer offices than staff.
- **MOTELING** – Employees check in upon arrival and are assigned a workspace with no advance "reservations."
- **SHARED SPACE** – Two or more employees use a single workspace permanently assigned to them. Employees must work together to determine when they each can use the space.
- **CAVES AND COMMONS/PRIVACY SPACE** – Individual workspace is provided for tasks requiring high levels of concentration, and common, community space areas are provided for team activities, like gatherings and conversations.
- **FREE ADDRESS** – A mix of unassigned private and open-plan offices and team and retreat areas are combined in one large integrated space.
- **HOME BASE** – An arrangement where an employee has a permanent office or workstation, as well as a workspace with another group where they work on a specific project assignment.
- **RELIEF SPACE** – Here, employees can interact with other employees to generate spontaneous or creative problem solving.
- **TEAM OR GROUP ADDRESS/CO-LOCATION** – This work environment is designated for use by a specific project team for the duration of a project.
- **CONFERENCE/MULTIMEDIA SPACES** – Special communication and presentation facilities that are provided in a separate space.

Off-Premises:

- **TELEWORKING/TELECOMMUTING** – Employees work at home, at an alternate work facility, or in a "virtual" environment at least part-time.
- **SATELLITE OFFICES AND TELECENTERS** – Alternate work facilities are located nearer to employees' homes. Satellite offices are typically operated by and for a single employer, while telecenters operate independently and are used by numerous employers.
- **"VIRTUAL OFFICE"** – Employees are equipped with the tools, technology, and skills to perform their jobs from anywhere, including home, office, customer location, or in transit.